WHAT IS CLAIMED IS:

1. A modulator for modulating a carrier with a changing signal, the carrier being generated by an E-Class oscillator having a tank circuit, comprising:

a reactance; and

a switch system in communication with the signal, said reactance, and the tank circuit, said switching system causing said reactance to be electrically connected to and disconnected from the tank circuit in synchronism with changes in the changing signal.

2. The modulator of claim 1 wherein said reactance is a capacitor.

3. The modulator of claim 1 wherein said switch system comprises a MOSFET.

4. The modulator of claim 3 wherein said switch system further comprises a zero crossing detector.

5. The modulator of claim 4 wherein said zero crossing detector comprises:

a comparator having a first input connected to a first input signal, a second input connected to a second input signal, and an output having a first value if the first input signal is greater than the second input signal and a second value if the first input signal is less than the second input signal;

a first resistive material connected between said first input and a fixed potential;

a second resistive material connected between said first input and said second input; and

a third resistive material connected between said second input and the changing signal.

6. The modulator of claim 5 wherein said zero crossing detector further comprises a phase offset reactance connected in parallel with said second resistive material.

7. The modulator of claim 6 wherein said phase offset reactance comprises a capacitor.

8. The modulator of claim 3 wherein said MOFSET is connected to an output of a D Flip Flop.

9. The modulator of claim 1 wherein:

said reactance is a first reactance;

said tank circuit comprises a second reactance; and

the ratio between the values of said first reactance and said second reactance causes said modulating to be amplitude modulating.

10. The modulator of claim 1 wherein:

said reactance is a first reactance;

said tank circuit comprises a second reactance; and

the ratio between the values of said first reactance and said second reactance causes said modulating to be frequency modulating.

11. A zero-crossing detector for detecting changes in the polarity of a varying signal comprising:

a comparator having a first input connected to a first input signal, a second input connected to a second input signal, and an output having a first value if the first input signal is greater than the second input signal and a second value if the first input signal is less than the second input signal;

a first resistive material connected between said first input and a fixed potential;

a second resistive material connected between said first input and said second input; and

a third resistive material connected between said second input and the varying signal.

12. The zero-crossing detector of claim 11 further comprising a reactance connected in parallel to said second resistive material.

13. An E-Class oscillator comprising:

an L-C tank circuit for generating an oscillating signal upon excitation;

a phase shift circuit in communication with said L-C tank circuit for shifting the phase of the oscillating signal;

a zero-crossing detector in communication with said phase shift circuit for detecting the zero crossings of the phase shifted oscillating signal;

a drive pulse generator in communication with said zero-crossing detector for generating a drive pulse in response to the detection of a zero crossing by said zero-crossing detector; and

a switching system controlled by the drive pulse generator and in communication with said L-C tank circuit for sustaining the oscillating signal.

14. The E-Class oscillator of claim 13 wherein said phase shift circuit comprises a resistive material connected in parallel with a capacitor.

15. The E-Class oscillator of claim 13 wherein said drive pulse generator comprises a D flip flop connected to a pulse duration potentiometer.

16. The E-Class oscillator of claim 13 wherein said switching system comprises a MOSFET